

CLAIMS

What is claimed is:

1. An isolated polynucleotide comprising:
- (a) a nucleotide sequence encoding a polypeptide having defensin activity, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10 have at least 80% identity based on the Clustal alignment method, or
  - (b) the complement of the nucleotide sequence.
2. The isolated polynucleotide of Claim 1, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10 have at least 85% identity based on the Clustal alignment method.
3. The isolated polynucleotide of Claim 1, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10 have at least 90% identity based on the Clustal alignment method.
4. The isolated polynucleotide of Claim 1, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10 have at least 95% identity based on the Clustal alignment method.
5. The isolated polynucleotide of Claim 1, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10.
6. The isolated polynucleotide of Claim 1, wherein the nucleotide sequence comprises the nucleotide sequence of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, or SEQ ID NO:9.
7. A chimeric gene comprising the polynucleotide of Claim 1 operably linked to a regulatory sequence.
8. A vector comprising the polynucleotide of Claim 1.
9. An isolated polynucleotide fragment comprising a nucleotide sequence containing at least 30 nucleotides, wherein the nucleotide sequence containing at least 30 nucleotides is comprised by the polynucleotide of Claim 1.
10. The fragment of Claim 9, wherein the nucleotide sequence containing at least 30 nucleotides contains at least 40 nucleotides.
11. The fragment of Claim 9, wherein the nucleotide sequence containing at least 30 nucleotides contains at least 60 nucleotides.

12. A method for transforming a cell comprising transforming a cell with the polynucleotide of Claim 1.

13. A cell comprising the chimeric gene of Claim 7.

5 14. A method for producing a transgenic plant comprising transforming a plant cell with the polynucleotide of Claim 1 and regenerating a plant from the transformed plant cell.

15. A plant comprising the chimeric gene of Claim 7.

16. A seed comprising the chimeric gene of Claim 7.

10 17. An isolated polypeptide having defensin activity, wherein the polypeptide comprises an amino acid sequence, wherein the amino acid sequence and the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10 have at least 80% identity based on the Clustal alignment method.

18. The polypeptide of Claim 17, wherein the amino acid sequence and the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10 have at least 85% identity based on the Clustal alignment method.

15 19. The polypeptide of Claim 17, wherein the amino acid sequence and the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10 have at least 90% identity based on the Clustal alignment method.

20 20. The polypeptide of Claim 17, wherein the amino acid sequence and the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10 have at least 95% identity based on the Clustal alignment method.

21. The polypeptide of Claim 17, wherein the amino acid sequence comprises the amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10.

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